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AUTHOR Wendler, Cathy L. W.; Roid, Gale H.
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ABSTRACT

Research on the use of sociometric ratings (peer nominations) in predicting achievement and school outcomes is briefly reviewed along with developments in instrumentation. Particular attention is given to a newly revised system of collecting teacher and self ratings along with peer nominations in a comprehensive assessment of the affective and social functioning of elementary-school children. An empirical study of the potential effects of class size on the distributions of sociometric choices is presented and peer nominations are found to be robust to classroom size effects. This study suggests that peer nominations continue to be a robust and important predictor of potential learning difficulties in classrooms, when used judiciously in combination with other sources of data. (Author)

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SOME QUALITIES OF PEER NOMINATIONS IN INDIVIDUAL, CLASSROOM, AND SCHOOL EVALUATIONS

Cathy L.W. Wendler
Western Psychological Services
and University of California, Los Angeles

Gale H. Roid
Western Psychological Services

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ABSTRACT

Research on the use of sociometric ratings (peer nominations) in predicting achievement and school outcomes is briefly reviewed along with developments in instrumentation. Particular attention is given to a newly revised system of collecting teacher and self ratings along with peer nominations in a comprehensive assessment of the affective and social functioning of elementary-school children. An empirical study of the potential effects of class size on the distributions of sociometric choices is presented and peer nominations are found to be robust to classroom size effects. The study suggests that peer nominations continue to be a robust and important predictor of potential learning difficulties in classrooms, when used judiciously in combination with other sources of data.

SOME QUALITIES OF PEER NOMINATIONS IN INDIVIDUAL, CLASSROOM, AND SCHOOL EVALUATIONS

Although peer ratings of student characteristics would rarely be used in isolation as a means of assessing student performance or the effectiveness of school programs, their importance in a wholistic assessment of the classroom environment seems clear. Sociometric measures, including both peer ratings and peer nominations or choices, collected on individual students have been found generally to show a moderate to low correlation with achievement and intelligence measures (Barclay, 1983; Gronlund, 1959; Semler, 1960). However, they have been shown to relate to student's level of aspiration (Haller & Butterworth, 1960), and aspiration level has been linked to achievement levels in output studies of schools (Levin, 1970). Also, it has been found that peers greatly influence disruptive behaviors in students (McGee, Kauffman, & Mussen, 1977).

In a series of studies, Barclay (1966, 1972, 1983) has shown the value of using peer nominations from the Barclay Classroom Assessment System (BCAS) (Barclay, 1983) in conjunction with self and teacher ratings to evaluate experimental school programs, special education placements, and school outcomes observed longitudinally, and to identify gifted or high-risk children. Barclay (1966) followed the school performance of 868 children originally rated by teachers and sociometric choices, and recorded the number who dropped out of school 4 years later. Using a grid contrasting teacher and peer ratings, students with low ratings on both measures contained 54% of the female dropouts and 64% of the male dropouts. Davis (1967) conducted further testing on 445 students from the original Barclay (1966) study, readministering the sociometric and teacher ratings. Students had been rated in grades 7 and 8, and were reassessed by Davis in grades 10 and 11 in a high school in Idaho. Names of 100 children representing an equal number of high-, medium-, and low-rated individuals as judged by the earlier ratings were presented to teachers and counselors in the high school. Students in the low-rated group were indicated as having significantly more problems in high school adjustment. The correlation between pre and post administrations of the sociometric device was .51 ($p < .01$), indicating substantial consistency over a 3-year period.

Barclay (1972) summarized a number of validity studies on the BCAS instrument that included specific peer nomination questions keyed to skill dimensions of Holland's (1966) theory of vocational choice (described in more detail in the Methods section of this paper and in Table 1). For samples of 109 male and 83 female students in grades 4 to 6, the incremental validity of peer choices as predictors of achievement (Stanford Achievement Test scores) over and above the predictive power of IQ (California Test of Mental Maturity) were investigated using stepwise regression analysis. Peer nominations of Artistic-Intellectual skills for females had single-order correlations with achievement of .41 to .47, and added .04 to .07 to the multiple R over and above IQ in the stepwise prediction of Arithmetic, Reading and Language achievement scores. Although this level of prediction was not found for males, the study suggested that social interaction variables are important to school learning and add substantially to the prediction of achievement independent of general intelligence.

In a study of gifted children and development of a predictive index for identifying potential gifted or learning-handicapped students, Barclay (1983) found that peer nominations used in combination with self and teacher ratings were an important addition to the comprehensive assessment of the child's functioning in the regular classroom. Both male and female students, identified independently by school personnel as gifted, were found to have a high frequency of combined high peer choices and high self ratings on social, academic and physical skills. Also, of the 64 gifted children, only 2 females had a combination of low teacher and low peer choices, whereas the majority of these gifted children had combined average or high ratings. In contrast, learning-disabled or educable mentally retarded students who had been mainstreamed into regular classes were found to have a high percentage of combined low teacher and peer nominations (64-65%) and combined low self and peer nominations (52-77%). Although such results may seem to be obviously expected, the phenomenological approach taken by Barclay has shown that objective measures of the sometimes unobservable social reactions of peers can be predictive of potential learning-related problems or, alternatively, of gifted status, in the classroom. With relatively brief screening measures of self, peer, and teacher ratings in the classroom (taking approximately 45 minutes of class time), a rather powerful and comprehensive assessment of classroom functioning is now possible (Barclay, 1983).

The purpose of the present study is to further investigate some qualities of the peer ratings proposed by Barclay (1983), especially the potential effects of class size on the distribution of sociometric choices. If choices are strongly affected by class enrollment, either separate norms would have to be developed for various class sizes or the results of the nominations would be confounded in some way with class size. These questions have not previously been investigated adequately in the research literature to our knowledge.

METHOD

Instrument

Peer nominations from students at the elementary-school level were obtained using the BCAS (Barclay, 1983), which includes a 63-item teacher adjective checklist, three self-report sections of 72, 40, and 52 items, and a 28-item sociometric section completed by each child in the classroom during a 45-minute test administration. The focus of the present study is on the 28-item sociometric section of the BCAS. Table 1 lists a sample of the peer-nomination items from the BCAS. Note that the item content measures the Holland (1966) dimensions as subscales. Each child is assigned a number, and each child in the classroom receives a "Students in My Class" sheet printed with large numbers under which all the students names are listed in alphabetical order. In responding to each question, the student identifies the nominated child by marking the appropriate number (from 1 to 36) next to each question on the optical-scanning test booklet. Results of the BCAS are computer analyzed using a complex interpretive program that compares and contrasts self, peer, and teacher ratings, and achievement test scores entered optionally by the teacher.

Insert Table 1 about here

Subjects

Two samples of data from elementary students were analyzed. The first was a subset of the normative data for the BCAS and included 137 smaller-enrollment classes (N < 23) and 85 larger-enrollment classes (N > 27). This represented 1,293 males and 1,206 females in the smaller classes and 1,367 males and 1,293 females in the larger classes. Grades 3 through 6 were represented in a wide geographical sampling of classes in California, Georgia, Indiana, Kentucky, Ohio, Oklahoma, Texas, Virginia, Wisconsin, and West Virginia. The normative sample included inner-city urban, middle-class suburban, and rural schools, black, white, and Hispanic students from Kentucky and Texas. The second sample of subjects used in the present study was an independent set of four classes that were administered the BCAS as part of a guidance/assessment screening program in an Ohio school district. These classes included two smaller classes in grade 3 (10 students) and grade 4 (15 students) and two larger classes in grade 3 (26 and 27 students).

Data Analysis

Two types of analyses were performed: (1) comparison of cumulative score distributions on peer nomination scales for the large samples of small-enrollment and large-enrollment classes, and (2) visual inspection of cross-tabulation tables for the peer nominations in the four Ohio classes for purposes of an in-depth examination of the patterns of the ratings. In the study of score distributions, the following peer nomination scales were examined: Artistic-Intellectual, Outdoor-Mechanical, Social-Cooperative, Enterprising, Total (of the four previous scales), Disruptiveness, and Reticence. For the study of the four Ohio classes, all nominations regardless of scale were tabulated.

RESULTS AND DISCUSSION

Cumulative frequency distributions for males and females separately were compared for large- and small-enrollment classes using the Kolmogorov-Smirnov two-sample test for differences between cumulative distributions (Siegel, 1956). No significant differences were found for any of the group scales. Because a liberal significance level of .10 was used, it is assured that the distributions of scores are highly similar regardless of class size. Some differences that approached significance were noted at the extreme high ends of the distributions for Group Disruptiveness (e.g., difference of 4 percentile points at the 84th percentile for males) and in the frequency of very large Total scores (e.g., total scores greater than 80 nominations) in the large-enrollment classes.

A further study of four exemplary classes revealed some interesting patterns in the way students distributed their nominations across their peers in the classroom. Cross-tabulation tables, showing the number of

nominations provided to each student by each of the other students revealed two trends: (1) Students tended to nominate themselves more frequently than might be expected; and (2) Subgroups of students appeared to nominate others within the subgroup -- as if there were cliques of mutual admirers within each class, regardless of size. Calculation of the means, standard deviations, and ranges of self-nominations for each class revealed a surprising uniformity. In the two small classes, mean self-nominations were 6.90 (SD = 2.88, range = 1-12) for the 10-student class, and 6.13 (SD = 3.09, range = 0-11) for the 15-student class. In the two large classes, means were 5.62 (SD = 2.51, range = 1-11) and 3.67 (SD = 2.47, range = 0-10). Thus, although there is a trend toward reduced numbers of self-nominations in the larger classes, the ranges of self-nomination totals are surprisingly uniform. The trend toward more self-nominations in the smaller classes may reflect a realistic assessment that the student is in fact the best at some skill, given that there are fewer students with whom to compare oneself.

Thus, peer nominations as implemented in the BCAS appear to be rather robust to the effects of class size. The two factors of frequent self-nominations and a subgroup/cliqueness factor appear to account for the fact that group nomination total scores are of approximately the same magnitude in small and large classes. The exceptions are a few rare individuals in some of the larger classes who have exceedingly high peer nomination scores.

Therefore, it is somewhat surprising that more use is not made of sociometric measures in a variety of school evaluation and individual assessment programs. Perhaps educators and psychologists have been reluctant to use peer nominations in isolation, and have seen the formidable problems of collating and scoring sociometric devices for entire classrooms or schools. Now, with the help of computerized scoring and interpretation, and with the possibility of integrating information from the multiple sources of peer, teacher, and self evaluations, systems such as the BCAS may promote more widespread use of peer data in evaluation and in research on classroom interactions. Wider usage of such techniques may allow for early detection of learning-related problems such as social isolation in the classroom or extreme disruptiveness, and provides methods for implementing the current trend toward supplementing the cognitive and achievement-related evaluations of school programs with non-cognitive measures of socio-affective functioning.

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FOOTNOTE

A previous version of this study was presented as part of the symposium entitled, "Noncognitive Variables in School Evaluation: Individual Differences and Classroom Environment Assessment", at the meeting of the American Educational Research Association, Montreal, April, 1983. Requests for further information should be sent to Dr. Roid at WPS, 12031 Wilshire Blvd., Los Angeles, California 90025.

Table 1

Sample Peer Nomination Items from the BCAS

Item	Category
1. Who reads the most books?	Artistic-Intellectual
10. Who is lots of fun to play with?	Social-Cooperative
14. Who can't sit still?	Disruptiveness
15. Who knows how to make things with his or her hands?	Outdoor-Mechanical
20. Who would like to be a leader?	Enterprising
25. Who is most quiet in class?	Reticence